The Confederate Cruiser Shenandoah.

The way the British assisted the Confederates during the late war of the rebellion is thus briefly described by the London *Engineer*. Referring to the naval exhibits now in the Glasgow exhibition, our contemporary says:

The Clyde, in 1860, was the first iron ship built for Messrs. Somes Bros., of London, whose East India fleet is well remembered as perhaps the most notable of that time.

Next to the John Lidgett, already referred to, was a model of a vessel which recalls the stirring maritime events of the American civil war. The vessel it represents, which was built in 1863, was at first named the Sea King. She was of composite construction, ship rigged, and fitted with auxiliary engines, a telescopic funnel, and a lifting propeller, being designed for the China trade, in which she quickly won her spurs as a swift tea clipper. This excellent quality attracted the attention of the Confederate government, who bought her and fitted her out as a cruiser, naming her the Shenandoah, under which designation she became a terror to the Federal mercantile shipping. Moving about as an apparently harmless and innocent sailing ship, she would suddenly raise her telescope funnel, and, putting on steam, would rush upon her prey, and after destruction or capture, would again resume the guise of a sailing ship and proceed in search of further prizes. The civil war had been nine months at an end when her commander, Captain Waddell, first heard from an English vessel that peace had been concluded. Most of his crew then begged of him to run his ship ashore and let each man look out for himself; but this the captain refused to do. Instead thereof, he set sail for this country, and running the gauntlet of the United States navy for a distance of 20,000 miles, he arrived safely at Liverpool, where he surrendered to the Queen of England. The Shenandoah was afterward purchased by the Sultan of Zanzibar, who made her his yacht, and ultimately, we believe, her checkered career was closed by being wrecked on the African coast. It may be of interest to note that the dimensions of this remarkable vessel were 222 feet long, 32 feet 8 inches broad, and 20 feet 6 inches deep. Her gross tonnage was 1,018, and her engines were of 200 nominal horse power.

Curious Chinese Notions.

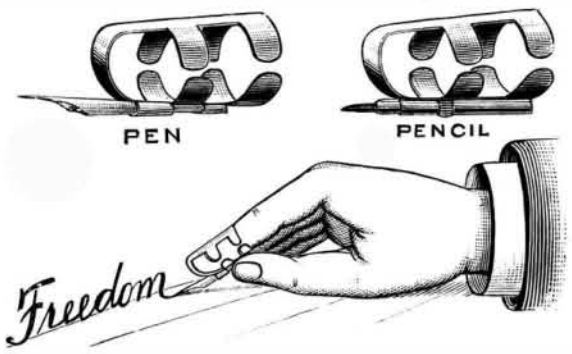
Both savage and semi-barbarous people have always exhibited a great repugnance to any surgical operation, however necessary, which involves amputation. The *North China Herald*, in commenting upon this circumstance, points out that the Chinese have always shown this repugnance, not on account of fear or pain, for they are patient under all kinds of physical suffering, but because they look upon it as a duty to keep the body intact. If they submit to the amputation of a limb, they invariably ask for the severed member, and keep it in a box, to be buried in due time with the owner. Sometimes they will actually eat it, thinking it only right that that which has been taken from the body should be returned to it. On the same principle, an extracted tooth will be carefully preserved, or ground to powder and swallowed in water. Another curious phase of the same idea is seen in the belief that a sick parent can be cured by broth made from flesh cut from a living child, and it is looked upon as a sign of filial piety for the child to submit himself to an operation for that purpose. The child is supposed to be of the vital essence of the parent, and if a portion of this essence is returned to the fountain-head, the parent will be greatly strengthened. The peace-loving nature of the Chinese is said to be largely due to this respect for the human body.—*Chambers's Journal.*

A Model Kitchen.

It is possible nowadays, says an authority, by spending money lavishly, so to build a kitchen that the most ingenious of servants cannot keep it otherwise than clean. One need not waste upon her unappreciative soul the costly tiles with which one lines the bath room, but may substitute for them the glazed bricks that are as highly polished, and that will make the floor, the chimney, the walls, if desired, and even the ceiling, as easy to clean as a breakfast plate. Once built, no whitewasher and no painter would be needed for such a room, no smoke need cling to its walls for an instant, and no odor of cooking would be perceptible in it, even if it were used for generations. And the temperature of such a room need not reach the great height unavoidable with plastered walls, which permit the warmth of the chimney to be perceptible through their surface, and thus both the good health and the good temper of the cook would be maintained. As for coloring, such a kitchen may be precisely what one pleases, for the bricks are made in all hues, and they may be laid in patterns or in wide surfaces of one tint from floor to ceiling. Lastly, as such a room would be fireproof, a sliding or swinging iron door would so isolate it that no kerosene-quickened fire and no careless upsetting of lard could bring destruction to the room itself of which a little water would not clear it.

FORSTER'S FINGER PEN AND PENCIL HOLDER.

This finger pen holder does away with the use of a pen handle, the finger itself performing this function. The holder slips over the end of the finger, and the springs hold it firmly in position for writing. The holder is stamped out of spring brass, German silver, silver, or gold. It will fit any finger without causing any inconvenience to the user, and when writing is interrupted it is not necessary to lay it down, but it may be worn until there is no longer any use for it. Any style of pen can be used, and it may be carried in a small box in the vest pocket. By supplying it with



FORSTER'S FINGER PEN AND PENCIL HOLDER.

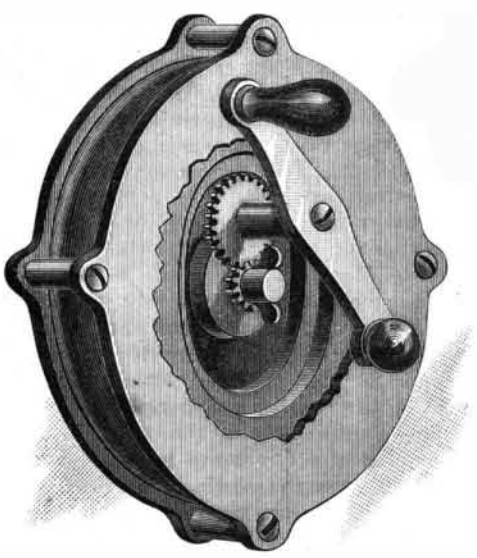
an ink tube, it may be used as a fountain pen. This is the invention of Edward E. Forster, 348 East 87th Street, New York.

Damping Grain.

One of the largest millers in the United States, C. A. Pillsbury, is credited with asserting that American millers do not dampen their wheat before grinding it. This is correct of some millers, but not of all, and the reason is not attributable to differences in millers, but to differences in wheat. Most of the California wheat ground in this State is moistened, because it is found necessary to do so. On the other hand, Oregon wheat will not stand dampening, as it contains enough water without this treatment. On this account local millers prefer California wheat, as they can add the necessary water for nothing, which they have to pay for in the Oregon article. When shipped abroad or stored for months at tidewater, there is less difference, as wheat which is not moist will become so when in a damp atmosphere. California wheat when afloat gains two to three per cent from absorption of moisture. A certain percentage of water in wheat is essential to render it fit for grinding, and the moisture has to be either found in the grain or applied artificially thereto.—*San Francisco Grocer.*

AN IMPROVED FISHING REEL.

A simple and durable reel, by which the line can be easily wound up or unwound, or locked in place as desired, is shown herewith, and has been patented by Mr. Nikolaus Dilg, of No. 631 East Fourteenth Street, New York City. The outer ends of the flanges of the reel proper fit in recesses on the inside of the side plates, whereby the line is permitted to run freely without getting entangled. The reel has a central transverse shaft on which loosely fits a bushing, a pinion being formed on the outer end of the bushing to mesh into a loosely turning gear wheel, the hub of



DILG'S FISHING REEL.

which extends through the outer side plate, and carries on its outer end the reel handle. The shaft serving as the axis of the reel also projects through the outer plate, where it is screw-threaded and provided with a winged nut, adapted to screw against the face of the pinion on the bushing surrounding the shaft. By screwing this winged nut inward against the face of the pinion, the reel is pressed tightly against the inner side plate, and a rapid unwinding or winding up of the line is prevented. Our view represents the outer side plate partly broken away, all of the gearing being inside of the side plates out of sight, preventing the gear wheels from being clogged up.

How the Mare Island Navy Yard was Lighted with Gas.

Mr. J. R. Smedberg says: In 1878 I was employed to connect the mains of the Vallejo, Cal., Gas Company with the government gas holder in the Mare Island Navy Yard, the impediment being a tidal strait some 1,400 feet wide and thirty feet deep. The fee was a fair one, but conditioned upon the success of the work.

At the end of the Georgia Street wharf, on the Vallejo side, I placed an Otto engine, a piston gas pump, and a tension cylinder, with quick-motion gates to act like a fitter's pump in blowing out any water condensed from the gas in the droop of the traversing pipe. The inlet to the gas engine was, of course, provided with a little gas holder to insure regularity of explosion.

The next task was to get a two-inch galvanized wrought iron wire across the strait. A series of barges were moored, and the pipe jointed on them ready for lowering, but some tipsy sailors found an obstacle in the way of their evening expedition, and cut the mooring ropes, so that the whole flotilla swung with the tide and twisted the pipe almost into a knot.

We then decided, on the hint of Mr. Fagan, the Vallejo company's superintendent, to place a capstan on the Mare Island side and pull the pipe across by sheer strength. So this was done, with a beveled chair under the leading end of the pipe, and a buoy tied to it in case of accident, coupling on length after length from the Vallejo wharf. The completed pipe lay like a hollow rope on the bottom of the strait, was connected at both ends, the engine and pump were started, and the Navy Yard was, for the first time, lighted with coal gas, instead of gasoline.

Then it was the unexpected which happened, or rather the expected which did not happen. During three years the pipe was never trapped off; there was no condensation of water vapor in 1,400 feet of pipe laid in water, with a drop of thirty feet in the center; the tension cylinder was never used.

It occurs that the gas may have left the pump under so high a temperature, due to compression, as to retain its carrying power of the vapor through the long conduit because the linear velocity through that conduit was so high, in other words, that a larger pipe would infallibly have been trapped. The friction developed by high velocity against the interior surface of so small a tube must also have tended to keep up the temperature of the gas flow. The gas left the pump at 100° Fahrenheit, and went across at the rate of 2,250 cubic feet per hour. The linear velocity was therefore nearly twenty miles per hour, and the time of transit about fifty seconds.

Yellow Fever.

Dr. G. M. Sternberg, who was commissioned by the College of Physicians, of Philadelphia, to investigate the methods of protective inoculation as practiced in Brazil (by Dr. Domingos Freire) and in Mexico (by Dr. Cargona y Valle), reported that facts concerning the endemic and epidemic prevalence of the fever justify the belief that its cause is a micro-organism, which can, under suitable conditions, be propagated outside the body, as well as be capable of transport to a distance; also that, as a single attack of yellow fever, however mild, mostly protects from future attacks, there is reason to hope that such protection might be gained by inoculation. The yellow fever germ probably gains entrance into the body by the respiratory or alimentary tracts, or through the surface of the body, or it is possible that it multiplies in insanitary localities and develops a volatile poison which contaminates the air. The former hypothesis, that it enters the body and multiplies within it, is, he thinks, the more probable. Hitherto the germ has not been found in the blood and tissues of those attacked, for Dr. Sternberg does not confirm the alleged discovery made by Dr. Domingos Freire. Nor is there, in Dr. Sternberg's opinion, any satisfactory evidence that the method of inoculation practiced by Dr. Domingos Freire has any prophylactic value, and the same applies to the claims put forward by Dr. Carmona y Valle, of Mexico.—*Lancet.*

MR. W. CROOKES, F.R.S., has presented to the department of science and art a collection of sixty-eight radiometers and similar instruments for permanent exhibition in the science galleries of the South Kensington Museum. They illustrate the steps by which Mr. Crookes was led to the construction of the radiometer, and to the production of motion and of phosphorescence by streams of electrified molecules in high vacua Many of the instruments are of the greatest historical interest. Among them is included the first radiometer, with many others which are described in Mr. Crookes' papers in the Philosophical Transactions of the Royal Society. Others are of considerable value, as they contain collections of diamonds, rubies, etc., for the exhibition of the phenomena of phosphorescence. Nearly all are in working order, and will be of great use in illustrating lectures to students in the Normal School of Science at South Kensington.